

[MRI MAGNET VIBRATION INDUCED FIELD INSTABILITY SIMULATOR]

Abstract of Disclosure

A Magnetic Resonance Imaging (MRI) magnet field instability simulator (80) is provided. The simulator includes a rigid body motion generator (82) that simulates motion of one or more MRI system components. An eddy current analyzer (84) generates a magnetic stiffness and damping signal and an electromagnetic transfer function in response to the motions and a cryostat material properties signal. A mechanical model generator (86) generates a mechanical disturbance signal and a mechanical model of one or more MRI system components in response to the motions and the magnetic stiffness and damping signal. A structural analyzer (88) generates a motion signal in response to the mechanical model. A field instability calculator (90) generates a field instability signal in response to the electromagnetic transfer function and the motion signal. A method of performing the same is also provided.